

## Flood stages for month of May, 1921—Continued.

| River and station.            | Flood stage. | Above flood stages—dates. |      | Crest. |        |
|-------------------------------|--------------|---------------------------|------|--------|--------|
|                               |              | From—                     | To—  | Stage. | Date.  |
| WEST GULF DRAINAGE—continued. |              |                           |      |        |        |
| Colorado:                     | Feet.        |                           |      | Feet.  |        |
| Topock, Ariz.....             | 14           | 12                        | 12   | 14.4   | 12     |
|                               | 14           | 23                        | 26   | 15.1   | 24     |
|                               | 14           | 31                        | (**) | 14.0   | 31     |
| Grand:                        |              |                           |      |        |        |
| Fruita, Colo.....             | 12           | 30                        | (**) | 12.6   | 31     |
| Eagle:                        |              |                           |      |        |        |
| Eagle, Colo.....              | 5            | 30                        | (**) | 5.1    | 31     |
| Gunnison:                     |              |                           |      |        |        |
| Sapinero, Colo.....           | 16           | 29                        | (**) | 17.5   | 31     |
| Delta, Colo.....              | 9            | 30                        | (**) | 9.3    | 30     |
| PACIFIC DRAINAGE.             |              |                           |      |        |        |
| Columbia:                     |              |                           |      |        |        |
| Marcus, Wash.....             | 24           | 22                        | (**) | 28.2   | 31     |
| Vancouver, Wash.....          | 15           | 17                        | (**) | 23.7   | 29, 30 |
| Kootenai:                     |              |                           |      |        |        |
| Bonnors Ferry, Idaho.....     | 26           | 25                        | 29   | 27.4   | 28     |
| Pend O'Reille:                |              |                           |      |        |        |
| Newport, Wash.....            | 16           | 27                        | (**) | 18.0   | 31     |
| Clearwater:                   |              |                           |      |        |        |
| Kamiah, Idaho.....            | 14           | 18                        | 27   | 14.7   | 26     |
| Willamette:                   |              |                           |      |        |        |
| Portland, Oreg.....           | 15           | 17                        | (**) | 22.9   | 29     |

\*\* Continued into June.

## MEAN LAKE LEVELS DURING MAY, 1921.

By UNITED STATES LAKE SURVEY.

[Detroit, Mich., June 6, 1921.]

The following data are reported in the "Notice to Mariners" of the above date:

| Data.                                  | Lakes. <sup>1</sup>    |                        |                        |                        |
|----------------------------------------|------------------------|------------------------|------------------------|------------------------|
|                                        | Superior.              | Michigan and Huron.    | Erie.                  | Ontario.               |
| Mean level during May, 1921:           |                        |                        |                        |                        |
| Above mean sea level at New York.....  | <i>Feet.</i><br>602.12 | <i>Feet.</i><br>580.58 | <i>Feet.</i><br>573.09 | <i>Feet.</i><br>246.68 |
| Above or below—                        |                        |                        |                        |                        |
| Mean stage of April, 1921.....         | +0.43                  | +0.24                  | +0.30                  | +0.30                  |
| Mean stage of May, 1920.....           | -0.21                  | -0.16                  | +0.80                  | +1.08                  |
| Average stage for May, last 10 years.. | +0.10                  | -0.02                  | +0.39                  | +0.07                  |
| Highest recorded May stage.....        | -0.93                  | -2.94                  | -1.33                  | -2.27                  |
| Lowest recorded May stage.....         | +1.30                  | +1.02                  | +1.78                  | +1.72                  |
| Average relation of the May level to:  |                        |                        |                        |                        |
| April level.....                       |                        | +0.30                  | +0.40                  | +0.30                  |
| June level.....                        |                        | -0.30                  | -0.20                  | -0.20                  |

<sup>1</sup> Lake St. Clair's level: In May, 575.62 feet.

## EFFECT OF WEATHER ON CROPS AND FARMING OPERATIONS—MAY, 1921.

By J. WARREN SMITH, Meteorologist.

[Weather Bureau, Washington, June 23, 1921.]

The first half of May was too cool for proper germination and growth of warm-weather crops in most States east of the Rocky Mountains but the more hardy grains and grasses, in general, made satisfactory progress. By the 10th of the month corn planting was in progress in the Missouri Valley as far north as South Dakota, but much replanting was necessary in many southern localities. After the middle of the month warmer weather prevailed and there was a substantial improvement in the growth of corn, although it continued too dry in portions of the Southwest. At the close of the month planting was in progress well to the northern limits of the country, while the crop was well cultivated in the Southern States.

It was much too cool for cotton also during the first two weeks of the month, while heavy rain occurred from the Mississippi Valley westward during the first decade. It was necessary to replant much cotton and the cool weather prevented satisfactory germination. Under more favorable weather conditions, however, there was a material improvement in this crop during the latter half of the month, although its general condition continued poor in many localities. Planting was nearly completed in the more northwestern portions of the belt by the close of the month.

The weather was generally favorable for winter-grain crops and satisfactory development was reported in nearly all portions of the country, although the sudden reaction to warm weather after the middle of the month was somewhat unfavorable for wheat in some interior sections, while the dry weather in western Kansas was harmful. Conditions were mostly favorable for spring wheat and that crop made satisfactory advancement during the month; the stand and color were mostly good at the close of the month.

The weather was more favorable for spring oats than had prevailed during April and the crop showed improvement in most sections, but continued in unsatisfactory condition in some localities, particularly in the southern Great Plains. It was too dry in the far Southwest, and during part of the month in the Southeast for meadows, pastures, and truck, and there was considerable frost damage to fruit from the upper Mississippi Valley eastward about the middle of the month. The drought was relieved in the Southeastern States by good rains on the 12th-16th, but it continued dry in the far Southwest. Rainfall benefited ranges in the central and northern Rocky Mountain districts and stock continued in generally good condition, except in parts of the Southwest.